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MISCELLANEOUS.

On the Examination of Urine in Chronic Albuminuria, with Notes on the Estimation of Urea and Differential Diagnosis.

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Read before the Lyon County Medical Society, May 7, 1895, Emporia, Kas.

Too much has been written by pens more ready than mine upon the importance of a thorough examination of the urine in each case worthy of a physician's attention for me to hope to add anything to the weight of an argument already so loaded with conviction. Neither do I claim any originality in the methods or deductions which I beg to present for the consideration of this society. If I may be able to demonstrate the practicability of certain means of arriving at definite conclusions in cases obscure in their origin and history, and from these conclusions the possibility of deriving a better understanding of the pathology and morbid anatomy of conditions which come under our observation every day, I shall have accomplished all that I can ask.

I have limited my paper to the discussion of chronic albuminuria and for the sake of definiteness, as well as brevity, will illustrate by describing the type of case which I mean. The case typical I would bring before your consideration is one now under the care of Dr. Conry and myself. A woman of 35, married 13 years, of active life, and, as she expressed it, never so sick that she could not forget it by "working it off," yet she has been conscious of failing health for the past year or more, and came to us complaining of a gradually increasing sense of great weariness and weakness, an almost constant pain in the back, frequently in the sacral region, less often greatest in intensity at the dorso-lumbar junction. She complained also of headache, increasing the past year in severity and frequency, sometimes frontal, more often involving the whole side or top of the head. She, like many other albuminuric patients who have come under my observation the past few months, had a deep-rooted conviction that all her difficulties had their origin in some displacement or "falling," as they term it, diagnosed by a previously consulted physician. It might be well to say in passing that if we could open that time-honored but doomed instrument, the speculum, upon the hidden processes of nutrition, we should find our task a far easier one, and fewer women would live out their lives under the depressing influence of a carefully diagnosticated displacement.

To return to our patient. She has had an irregular and diminishing menstrual flow since September last, until for the past ten weeks it has become an amenorrhœa. Her menstrual history is entirely normal, broken by two successful pregnancies, ten and twelve years ago; no miscarriages nor other irregularities; no illness of any duration since marriage and only one before, and that at the age of 13, when she lay for six weeks in the delirium of typhoid—five in the family prostrate with the same disease. Careful questioning elicited a history of attacks of dizziness at frequent intervals during the next five years, disappearing upon her marriage and removal West. Further, we found out that during the past two years she has suffered occasionally from shortness of breath—rather oftener of late than formerly; and twice or three times

she has noticed that her feet were swollen at night. Examination revealed normal lungs. The left heart slightly hyhertrophied, but regular in action, with only a slight prolongation of the first sound; no leakage. Pulse soft and regular. Abdoman and pelvis normal. No constipation, good appetite, and no conscious indigestion. The skin has a muddy appearance, in many places spotted with pigment deposits; and it has a peculiar feel to the fingers, too dry and lifeless, lacking the velvety quality of healthy skin.

An examination of the urine was made. Quantity in 24 hours, 2 pints and 4 oz.; sp. g., 1018; clear but, rather dark in color.

The ordinary test for albumin was used more as a matter of routine habit. An abundant fluculant pp. appeared upon boiling, part of which was dissolved in the slowly added nitric acid; but upon standing for an hour a dark granular deposit one-quarter of an inch in depth was in the bottom of the tube.

The question, of course, arose, how much of that pp. is albumin. Heat and nitric acid, and the cold test of Hellar as well, pp., beside the serum albumin oleoresins mucin and some of the urates, we are always certain of a mucous contamination in examining the urine of such a case as described, unless the patient is catheterized. It is therefore most important that a test be used which will pp. albumin alone with unvarying accuracy. Such a test is found in the reaction of acetic acid and ferrocyanide of potash when mixed with clear urine. It is very simple of performance. Into the bottom of a clean test tube drop 15 or 20 drops of acetic acid, and add twice that amount of an aqueous solution of potassium ferrocyanid 1 to 20, and after inverting the tube two or three times place in a good light and await the fine white pp. Concerning the pp. we may be absolutely certain that it is albumin and albumin alone. Mucin, phosphates, urates, peptines and vegetable alkaloids or oleoresins are not pp. by this method.

Concerning its delicacy I shall be able to demonstrate to you here a specimen of urine with which the heat and nitric acid test has given an almost imperceptible reaction, while the acetic ferrocyanide test brings out a pronounced result.

Heat and nitric acid as well as the cold nitric acid is certainly not a trustworthy means of dismissing the possibility of the presence of albumin in suspected urines. For instance, in the case of the late Bishop Thomas, who was seized with a fatal illness on the 4th of March last, passing into a comatose condition the following morning, much was said of the fact that only two weeks before his urine had been submitted to an examination by the instructor in urinalysis in the homeopathic school of medicine in Topeka. Uræmia, though considered, was excluded from the early diagnosis of his condition on account of the positive report of that examination. I would be far more inclined to think that the failure to discover the presence of albumin was due to the reagents used than to the examiner. The fourth day of coma he passed less than two ounces of urine in 24 hours and death supervened.

Next in importance to an accurate and delicate test for albumin, comes the means of determining the resultant of tissue metabolism as it exists in the urine. That is to say the amount of urea then present.

Our knowledge of the processes of the formation of urea and its relation to the health equilibrium is as yet limited. This we do know, that it is formed in direct ratio to the disintegration of the proteids, and its excretion by the kidneys is a necessary concomitant of the ingestion of the nitrogenous foods. If the metabolism of the body is in a condition of equilibrium with a just balance between supply and waste, the urea excreted contains almost as much nitrogen as is taken in with the nitrogenous constituent of the food. Experiment has taught us that a decrease in the excretion of urea is a constant forerunner of the dread climax of chronic albuminuria — uræmic poisoning. That symptoms of that poisoning, cerebral and others, are preceded many days or months by a decrease of the amount of urea excreted by the kidneys. The normal amount per diem excreted by an adult man

is from 30 to 40 grammes or 500 grains; women less and children comparatively none.

The quantity of urea excreted in 24 hours is a most important item to ascertain, in cases where we have already the knowledge that the kidney is not fulfilling its function. Quantitative tests for urea are based upon its decomposition by caustic alkalies and the liberation of nitrogen gas. I have here the apparatus of Dr. Doremus, of New York. You will see that it consists of a long arm with bulb attachment—the arm graduated to read in this instance grammes and fractions of grammes per cubic centimeter of urine tested. The caustic solution is introduced into the long arm of the instrument and a c.c. of the 24-hour urine discharged into the fluid by means of a curved pipette. The instrument is very neat of operation and fairly accurate, but of course somewhat costly and liable to be easily destroyed. I want to call your attention especially to a home-made apparatus which is easy of construction and fully as accurate in practice. All the outlay necessary is a graduated test tube, as you see here; then with two wide mouthed bottles, a small homeopathic vial, the stopcock off a syringe and some glass and rubber tubing, with the ordinary U.S.P. chlorinated soda or Labarraques' solution, the quantity of urea in a given quantity of urine can be estimated as satisfactorily in a private office as in the elaborate hospital laboratories. I hope you will feel free to test these various apparatus each for himself, and I will take pleasure in explaining the different solutions as I wish especially to emphasize the practicability of the estimation of urea in our every day practice.

One word as to its significance. Suppose in the case which is before us the quantity of urea was reduced 25 per cent., that the Doremus apparatus registered only 1.5 hundredths grammes per c.c., we might say at once that the prognosis of the case assumed a much more serious aspect than if the albuminuria were the only thing to be dealt with. Deficiency in urea is always accompanied by some defect in the arterial system—usually a contraction of the arteries and increase in arterial tension. Occasionally, as in the case above described, there seems at present no abnormal tension in the arteries, but undoubtedly that tension will appear as the attacks of dyspnœa recur.

Of course no urinalysis can be complete when the presence of albumin is established without a microscopic examination. By the lens alone can the extent of the injury done the kidney be made out. The microscope gives no inferences or uncertain probabilities. It deals only with certainties. Renal epithelium, cells from the tubules, and tube casts are a sure index to the damage done the parenchyma of the organ.

It is quite time that we learned to distinguish these different lesions of the kidney in our diagnosis and lay aside that least definite of all indefinite terms—Bright's disease. Richard Bright placed an everlasting obligation upon the medical profession by his careful, conscientious work, but he would have been the first to regret the preservation of a term which has proved a hindrance to accuracy.

My paper has already reached its limits, but there are points in diagnosis, groups of symptoms, which it is well to keep in mind as outlines of diagnostic accuracy. We may be able to talk glibly of "parenchymatous degeneration," "chronic productive nephritis with exudation," "chronic interstitial nephritis," or "chronic productive without exudation," according to the author whom we read, but the real matter of importance is to determine the condition in the kidney and arterial system, which reveals itself first by the presence of albumin in the urine with more or less characteristic and distinct trains of symptoms. This of course cannot always be done, as there are cases of persistent albuminuria without any other symptom save that of increasing anæmia; and when there is no existing wasting disease such as tuberculosis or cancer.

But most cases of chronic albuminuria may be divided by accompanying and progressive symptoms into one of two classes:

First. Those in which dropsy is a prominent feature, with a peculiar pallor of the skin and white color of the sclera. The

urine is often increased in quantity in spite of the dropsy, and there is frequently a very low specific gravity, with a rise and fall of urea. This is the kidney with a large growth of connective tissue in the stroma of the cortex, and waxy degeneration of the capillaries. That kidney may be large and white, waxy, or small and red with adherent capsules, but one thing is always present, and that is wedge-shaped masses of new connective tissue, sometimes following the straight arteries and veins, in other cases in irregular masses—with the necessary sequence of compression upon the capillaries and consequent atrophy. These are the cases where the arterial tension is less often increased, and the fatal uræmia is of a chronic and not acute type.

Second. We have chronic albuminuria with little or no dropsy, an ever present arteritis and hypertrophy of the heart. Decreased quantity of urine, low specific gravity, dyspnœa, and the tendency is toward acute uræmia with high arterial tension and profound cerebral symptoms. The type of kidney in these cases is small and nodulus. The albumin in these cases is often of slight quantity, but the urea is invariably diminished before imminent attacks of uræmia.

I may say that I would cite as my authorities in these few facts I have tried to group together: The recent work of Charles W. Purdy, of Chicago, "Practical Urinalysis and Urinary Diagnosis"; the article of Francis Delafield on "Diseases of the Kidneys" in the first volume of the "Twentieth Century of Practice"; Landois & Sterling in the third edition of their "Text-book of Physiology," and the exhaustive article of Prof. R. F. Ruttan in vol. vii of the "Handbook."

DISCUSSION.

In the discussion which followed the reading of this paper the question was raised whether the acetic acid and ferrocyanide test was as practical in application as the ordinary heat and nitric acid method. Test tubes were shown testing urine which contained a small quantity of albumin, the patient a woman of 67. Some time before the paper was read an ordinary quantity was filtered and boiled in a test tube and a few drops of nitric acid added. At the same time another tube was prepared with the acetic acid and ferrocyanide and the two exhibited together. The tube containing the boiled urine and nitric acid showed only the faintest cloudiness, no deposit. The precipitate was so slight that it might easily elude the inexperienced. The tube containing the other test showed a marked reaction. The white cloud of precipitate pervaded the whole tube and was already settling in fine flakes.

Normal urine was also shown, subjected to the acetic acid and potassium ferrocyanide without trace of a precipitate. The full examination of a specimen of pathological urine was also demonstrated. Total quantity in 24 hours 2½ pints, specific gravity, 1016. Heavy precipitate with albumin tests. The amount of urea excreted in 24 hours was approximated by a home-made apparatus. Five cubic centimeters of the urine were placed in a small vial and lowered into a wide-mouthed bottle containing about six times that amount of chlorinated soda, U. S.P. The rubber stopper was tightly adjusted with the tubing connecting this bottle with another bottle partially filled with water and having an overflow attachment and stopcock, After the apparatus was seen to be at an equilibrium the urine was tipped into the caustic solution and the nitrogen gas eliminated by the decomposition of urea was accurately measured by means of the water displaced from the second bottle. Twenty-two cubic centimeters of water were so displaced. This figure multiplied by the decimal .00282 gives the amount of urea in 5 cubic centimeters of urine. That proved to be a trifle over 6 hundredths grammes. The normal amount of urea in 5 cubic centimeters is 1.10 gramme. By carrying the same calculation out, computing the total amount of urea excreted in one day, an approximation may be obtained accurate enough for practical prognosis.

The deposit from this same urine was shown under the microscope—where epithelial casts, renal cells and broken casts were plainly visible.

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Milk Diet in the Treatment of Albuminuria.

Much has been said of the milk diet in the treatment of albuminuria. While it has not been the purpose of the leading article in this number and extracts to discuss the question of treatment in albuminuria, so wide a subject deserving a more exhaustive investigation, yet it may be well to make a few notes upon the practical execution of the milk diet treatment. The physician's ideas upon that subject are too apt to be somewhat indefinite. He tells his patient that milk is the best thing for him, and orders him to take two quarts a day at regular intervals, prescribes perhaps some solution or powder containing pancreatin and is confronted in about forty-eight hours by a thoroughly disgusted patient who has had enough of the milk diet. No two cases of albuminuria can be treated in the same way. So no two patients can be put upon a milk diet in the same way.

There are, of course, many cases of chronic albuminuria not amenable to the milk treatment at all. Those particularly where we have reason to suppose the escape of serum albumin through the kidney epithelium is due primarily to a heart lesion with symptoms, perhaps, of pericardial effusion—such cases are certainly made worse by fluid diet. But where we can arrive at definite conclusions concerning the destruction going on in the kidney, and rest of those organs is most clearly indicated—in those cases the milk diet offers the best chance of restoration.

But the management of treatment by an exclusive milk diet is no small task, and it requires the attention of the physician in the details. First of all he must see that the milk is assimilated by the patient, and that the full amount of nourishment is obtained. It is often necessary to begin with the small glass—not more than 6 ounces—with an interval of two hours. By beginning at 7:30 in the morning and continuing until 9:30 at night we may get in 8 glasses or 3 pints. If that is all digested the patient will not lose ground for a short time, but it is quite necessary that the full 2 quarts be taken as soon as possible—the size of the glass increased and the interval lengthened. At first, while the patient is acquiring a tolerance for milk, it may be necessary to allow a little solid food three times a day, thereby making the increase to two quarts a more gradual one. This should be dispensed with as soon as possible.

Occasionally a patient may be found who can take pure cow's milk in sufficient quantity, digest and assimilate it. But such a patient is rare. Ordinarily the milk should be peptonized to a greater or less degree, according to the patient, but always sufficiently to prevent fermentation enter either in the stomach or intestinal canal. Pancreatin and soda of course form the foundation of all peptonzining agents, liquid or dry.

Fairchild's tubes are undoubtedly the most reliable, but they have the disadvantage of being expensive, and 5 grains of ext. pancreatin with 15 of soda bicarb. will take the place of a tube with perfect satisfaction. The milk should be perfectly fresh and prepared three times a day.

Not long since a patient with a chronic productive nephritis without exudation, but with an unusual amount of albumin daily in the urine, proved very hard to manage under a milk diet. She was constantly nauseated, and had a severe colic and diarrhea much of the time. After various methods were tried the milk was peptonized for her for 45 minutes by the warm process and 15 minutes before each glass she was given a teacup of hot water flavored with tea. By these means she finally reached an exclusive milk diet with normal stools and no distress.

Six weeks is the shortest time from which to expect permanent results by the milk treatment. Six months makes the result far more sure.

In hospital practice it is a common thing for patients to present themselves for operative treatment with chronic albuminuria. In some of these cases it is best to go ahead without further regard to the condition in the kidney than care in the selection of the anæsthetic and duration of the anæsthesia. In many such cases, however, particularly in abdominal work where time is not a pressing consideration, treatment directed toward the albuminuria is indicated before subjecting a diseased kidney to the great strain of an operation. This delay and treatment has proved in many cases most satisfactory in its results and is especially important when the urea is decreased in quantity.

The physiological and pathological action of our common anæsthetics in their elimination by the kidney is a contribution yet to be made to physiological chemistry. Certain it is that prolonged or repeated anæsthesias play no small part in many of our cases of chronic nephritis. It may be that the value of opium narcosis has not yet been recognized in averting this most serious sequella of surgical work. Only painstaking and prolonged investigation can settle this question.

The Relation of Arterial Tension and Chronic Albuminuria.

From Francis Delafield, M.D., in Twentieth Century of Practice.

This is not always classed with the uræmic symptoms. It is, however, one of the most frequent and important of the symptoms of chronic nephritis, and it is by it that many of the socalled uræmic symptoms are produced. It has been believed that this increased tension of the blood in the arteries is due to chronic changes in the walls of the arteries and capillaries which interfere with the passage of the blood through them. The explanation is very probably true up to a certain point, but it does not account for the attacks of increased arterial tension which come and go within a few hours. I do not see how these can be produced except by the temporary contraction of arteries which have a well-developed muscular coat, such as the radial artery. I think that it is possible to demonstrate after death in such arteries an hypertrophy of the muscular coat, in patients who have had many attacks of increased arterial tension. If this is admitted, then we have to find a reason for the attacks of contraction of the arteries which last for hours or for weeks, and which can often be controlled by the drugs which dilate the arteries. Beside chronic nephritis such attacks of contraction of the arteries occur with angina pectoris; chronic endocarditis; chronic arteritis and pulmonary emphysema.

It seems as if such a contraction of the arteries must be due to some irritating substance in the blood. But whether there is anly one poison which acts in this way or several poisons, and how such poison or poisons are produced, we do not know.

The cerebral symptoms are the ones to which most attention has been directed. There can be no question that they accompany a contraction of the arteries with increased arterial tension and labored action of the heart. No matter what views one may entertain as to the cause of this change

in the circulation, I believe that treatment is best directed to the arteries themselves, rather than to the uncertain causes of their contraction. Fortunately there are drugs which stop contraction of the arteries promptly and efficiently. Of these drugs the most suitable are: aconite, nitroglycerin, chloral hydrate, and opium, preferably given in small doses and at regular intervals before the cerebral symptoms are marked, but in large doses hypodermically or by the rectum to stop a severe attack. It is wise to watch the condition of the heart and arteries, and as soon as increased arterial tension is developed, not to wait for the manifestation of the cerebral symptoms, but to try to relieve it at once.

Under the head of "Chronic Productive Nephritis Without Exudation":

Heart.—Hypertrophy of the left ventricle of the heart is frequently caused by exudative nephritis, but much more frequently by chronic nephritis without exudation. It must be admitted, however, that such an hypertrophy, although frequent, is not constant, and that with both exudative and non-exudative nephritis there may be no change in the wall of the left ventricle.

The hypertrophy of the wall of the ventricle may after a time be succeeded by dilatation, or chronic degeneration or myocarditis. Chronic endocarditis is often associated with this form of nephritis, apparently both lesions being produced by the same causes. It may also happen that chronic endocarditis causes first chronic congestion of the kidney and then chronic nephritis without exudation.

Arteries.—One of the most important of the complicating lesions is chronic endartertis. The relationship between endartertis or, more properly speaking, arteritis and nephritis, and the ways in which they are associated together, are not as fully understood as they should be. The principal reason for this is the failure to recognize the fact that chronic inflammation of the walls of the arteries is just as much a disease as chronic endocarditis or emphysema, or cirrhosis of the liver.

Chronic inflammation may involve the entire aortic system of arteries, or it may be confined to a part of that system. If a large part of the aortic system is involved, the patient suffers from symptoms which seem to depend partly upon the changes in the arteries, partly upon attacks of contraction of the arteries, partly upon hypertrophy of the left ventricle of the heart, and heart failure, partly upon the obstruction of the passage of blood through the cerebral arteries. It is evident that the symptoms and death of these patients are due to the changes in the arteries. But it is also evident that their symptoms—loss of nutrition, anæmia, contraction of the arteries, hypertrophy of the left ventricle, dyspnœa, heart failure, unconsciousness, aphasia, hemiplegia—are also the symptoms of chronic nephritis.

Still further we find that many patients with these symptoms do have both arteritis and nephritis. In any given case with these symptoms, therefore, it is a matter of importance to determine whether the patient has arteritis alone, or nephritis alone, or both diseases at the same time.

The left ventricle of the heart regularly becomes hypertrophied after the nephritis has lasted for several months. The hypertrophy is usually easily made out. The patient remains unconscious of its existence, or has disturbances of sensation and palpitation. As the disease goes on the hypertrophied heart may become feeble, and then dyspnœa and other evidences of feeble circulation make their appearance.

In the same way the complicating endocarditis, which so often exists, may give no trouble until the valves are a good deal changed, or the ventricles dilated, or the heart's action altered or the arteries contracted; then the circulation is interfered with, and the results of venous congestion of different parts of the body show themselves.

REMEMBER that we will furnish you the JOURNAL for one year and Helbing's Modern Materia Medica for $2.50.

The Society.

The twenty-ninth annual meeting of the Kansas Medical Society which was held in Topeka this week may be counted among the brilliant events in medicine. The Society convened in Representative hall at 9 o'clock Thursday morning, and though all possible efforts were made to expedite matters the first section of the program on Practice of Medicine was not completed till nearly noon Friday.

The program was an extensive one, entirely too large for the time allotted to the meeting. It was found necessary to have separate section meetings. In this way many of the members missed considerable of the program.

A special hour was set apart for the hearing and discussion of the paper by Dr. J. B. Murphy. This was by far the most interesting part of the whole session. Dr. Murphy has a fine address and is a delightful speaker. His utterances are marked by that keen perception of his subject which characterizes the student and philosopher.

The business transacted at this meeting was of considerable importance to the membership. The initiation fee was raised to $5 and the annual dues to $2. In addition to this it was found necessary to make an assessment of 50 cents upon each member in order to meet the present obligations of the Society, and provide for the publication of the proceedings of this meeting. But little more than enough to pay the indebtedness and the expenses of this meeting was collected and in order to publish the proceedings it will be necessary to collect all outstanding dues.

The article in the constitution providing for the place of meeting was so amended that Topeka is made the permanent location. The attendance at Topeka indicates either that it is easier reached or the members expect more here for it is generally conceded that no other place will bring out more than half the number. There were something more than 200 in attendance at this meeting.

It is very unfortunate that the matter of railroad rates cannot be more satisfactorily arranged. With the large attendance here the number of certificates presented fell far short of the required 100. This is probably due to the fact that a great many members are favored with passes. We hope that next year some means will be devised to secure a definite rate.

As usual the judicial council were burdened with business. Charges were preferred against several members and three were suspended. It is unfortunate that the members of this committee are always prevented from taking part in the section work of the Society and we would suggest that they hold their deliberations on the day previous to the convening of the Society.

The election of officers passed off very quietly and the result was apparently satisfactory to all. Dr. R. S. Black of Ottawa was elected President, G. A. Wall of Topeka Corresponding Secretary and Dr. Reynolds of Horton Treasurer. The Vice Presidents are M. N. Gardner of Greenleaf and Andrew Sabine of Garden City. Dr. Mathis of Waverly, member of Judicial Council.

SOCIETY NOTES.

Dr. Murphy regards morphine as being the cause of more injury in cases of intestinal obstruction than any other agent. It removes the only prominent symptoms and obscures the diagnosis. It checks the peristaltic action for 12 hours. So that when an operation is necessary the surgeon is compelled to wait until the effect of the morphine has passed off before he can secure a thorough catharsis and this he regards a very essential point in the immediate after treatment. To relieve the pain and suffering he suggests hot poultices, whiskey or chloroform. Whiskey he says will frequently give much relief.

Auscultation is an important diagnostic method in these intestinal cases. He says whenever there is an obstruction without peritonitis there will be increased peristaltic action and a constant rumbling sound but if there is general peritonitis there is com-

plete silence. When local peritonitis exists it may be outlined by the area of silence.

In resection of the intestion it should be cut so that the mesenteric side will be longer than the opposite side, otherwise a good result is impossible. If the opposite side be left a half inch longer than the mesenteric the circulation is cut off and that tissue will perish.

There are apparently some members of the State Society who imagine the session has convened for the sole purpose of listening to their wisdom. The resolution which was introduced limiting all papers to twenty minutes is a good one and should be strictly lived up to. It is very unfair for anyone to monopolize all the time at these meetings.

Milk, Boiled or Unboiled.

Canada Lancet.

The heated term will soon be upon us, with its usual crop of infantile troubles. As these chiefly have to do with the alimentary tract, and as either poor quality of food, or injudicious feeding is responsible in the great majority of cases for the lighting up of the trouble, the question of the milk supplied as food is a most important one. It would be supposed that experience would have taught mankind whether cooked or uncooked milk is best as food; but this we find is not the case. Science is called upon to show which is preferable, and even scientific men, who have undertaken the investigation of this subject, fraught with importance to so large a proportion of the infantile population, have not been unanimous in their findings. Some say that Mother Nature knows what she is about, and that the article as it flows from Nature's font is assuredly the best. So it is for the calf, colt, lamb, or infant, if it sucks its own mother; but when that is not possible, and cow's milk has to be used for the young of the human species, then practical and everyday experience shows that when boiled it is not only more easily digested, but that it has a nutritive value quite equal to the raw article.

Experiments undertaken by Dr. C. Chamouin, first with kittens and afterwards with infants, showed after exhaustive and repeated trials that the kittens fed on boiled milk were "twice again as fat" as those supplied with the raw milk; and that the boiling of the milk is the means of preventing the loss of innumerable lives by gastro-intestinal disease.

We hear much of the sterilization of milk, and various more or less cumbrous processes have been suggested for the purpose. While, however, such processes are easily carried out in laboratories and institutions properly equipped for such operations, the trouble is to get it done in the ordinary household, with the ordinary means and intelligence at hand. Now, milk boiled properly is certainly sterile, so far as infectious disease germs are concerned.

Not only so, but it is more easily digested and agrees with a far greater percentage of cases than does unboiled milk. There is ample authority for the above view of the case, but certain points must be attended to, else the results will not be so favorable. Firstly, all the vessels in which the milk is carried, boiled and afterwards kept must be scrupulously clean. Nothing else but absolute freedom from dirt will suffice. Then it should never be boiled in an open vessel. This should have a close cover.

Lastly, it need not be kept at 212° F. for more than twenty minutes. This is sufficient to sterilize and cook it, and no further boiling is necessary.

In instructions issued by the Chief of the Bureau of Animal Industries at Washington, regarding sterilization of milk, the nurse is warned not to allow the temperature to exceed 155° F. It is asserted that if it exceed 155° F. "the taste and quality of milk are likely to be adversely affected." While not wishing to detract from the importance of these instructions, we say again that in ordinary everyday practice from house to house, they will not be carried out, and we shall have better results if our orders are such as may always be obeyed. Therefore

the simple boiled milk must, we think, for the present at any rate, take the place of the sterilized or Pasteurized product.

Treatment of Mumps.

Sem. Med.

During a recent epidemic of mumps among soldiers, Dr. A Martin successfully resorted to the following treatment: From the outset he instituted buccal antisepsis, which, when rigorously done, according to his observations. diminishes the chances of testicular complication. He, therefore, had his patients gargle and cleanse the mouth as often as possible with solutions of thymol, carbolic acid or very hot 4 per cent. boric acid solution. Besides, during the first days of the disease he administered antipyrin in daily doses of 2-3 grammes (30-45 grs.). This, he states, more rapidly effects the resolution of the inflammatory process than do sodium salicylate and other remedies; moreover, it acts more promptly on the fever and pain. In orchitis caused by mumps, pilocarpine subcutaneously in doses of 1 centigramme (1-6 gr.), repeated once daily, is said to have promptly diminished the pain from the first evening on, and to have lowered the temperature, which became normal on the third day. The swelling of the testicle disappeared between the eighth and tenth days. After the acute period of orchitis was passed, the patient was submitted to a tonic treatment (cod liver oil, nux vomica, cinchona extract, meat powder, sulphur baths, etc.) for the purpose of preventing testicular atrophy.

The Phayngitis of Albuminuria and Diabetes.

The Times and Register.

Garel (*Ann. des Maladies de l'Oreill* etc., February, 1895) speaks of a form of pharyngitis which indicates the presence of diabetes or albuminuria. There are two forms of pharygitis associated with these diseases, namely, the hyperemic and anemic; these appear to the author to be two stages of the same disease. In the dry or anemic form the mucous membrane may be of somewhat a grayish appearance, granular, often traversed by small vessels. It is only the hyperemic form which presents characteristic features Sugar or albumen is then almost invariably found in the urine, whereas in dry pharyngitis they are only present in one-eighth of the cases. In this hyperemic pharyngitis there is discomfort in the throat, trouble in swallowing saliva, and the pharyngeal mucous membrane is swollen, hypersensitive and with excess of secretion. The voice is often a little husky. In 21 such cases the author found sugar in 10 and albumen in 11. In the former the age varied from 40 to 50, in the latter from 28 to 75. As regards the amount of sugar present, the state of the throat gave no indication, but the albuminuria, except in one case, was always slight. The author concludes that this hyperamic pharyngitis may be considered as the first indications of diabetes or albuminuria. It is almost pathognomonic.

Opium in Gynæcology.

Dr. Joseph Price, in the Quarterly Journal of Inebriety.

The medical profession has always been responsible for the opium habit of patients or the laity, by its reckless and indiscriminate prescription of anodynes and narcotics—generally used for the treatment of symptoms; rarely does the routine practitioner make a precise diagnosis before giving opium, if pain is present. Opiates are commonly used without a clear recognition of indication except that of pain. The opium habit is rarely acquired, except it be antedated by pain or an illness for which some doctor has given morphine or some preparation of opium. There is scarcely a remedy in the Pharmacopœia used so recklessly and ignorantly, and none doing more general mischief—it has always done thrice as much harm as good. In the general practice of medicine, some of the preparations of opium are to be found in about every prescription. The hypodermatic syringe has made thous-

ands of morphine *habitues*, either with the syringe or with the powder alone. The abuse of the drug is much more common in some States than in others. The influence or impress of certain teachers of therapeutics has been wide in certain sections. The very common remark of teachers, "Gentlemen, it is your mission to relieve pain and suffering," has done a world of mischief. Many of them spend days talking over the numerous preparations of opium, without an allusion to the importance of an accurate knowledge of pathology and diagnosis.

Nervous Diseases.

Archives of Pediatrics.

The increasing tendency to nervous disease observed in recent years is becoming a subject of interest to workers in every department of medicine. This is especially true in pediatrics. The high tension of modern life is not felt by adults alone. Children and even infants are affected directly and indirectly by the same influences which generate nervous disorders in their elders. In addition to the necessary mental and nervous burdens which children must have in common with all members of modern society, numerous unnecessary burdens are thrust upon them. Never before has so much attention been devoted to childhood. Thousands of people are devoting their lives to the task of devising for children new amusements and recreations. Books and magazines almost without number are printed for their exclusive use. Thirty years ago wealth could not buy what the children of the most ordinary households now commonly enjoy. Never before have children occupied so important a place in the household. The tendency to exalt childhood and womanhood is one of the most commendable in modern civilization. It is being carried in directions, however, to a harmful extreme. This seems to be especially true in the larger towns and cities, and the family physicians and pediatric worker have many opportunities for doing missionary work in this direction. Many of the opportunities are admirably described by Dr. Bridge in a late issue of the *Journal of the American Medical Association*. Many of the errors of parents, as the author intimates, are due to the greater comradry with their children and the growing tendency to remove the barriers between childhood and age. This naturally results in the feeling that children should enjoy the same pleasures and indulge in the same pastimes as their elders. Such recreation is frequently of a character far too stimulating for the sensitive nervous organism of the child. The prevailing tendency of the times is to overstimulation of children. This tendency pervades our whole educational system. It permeates juvenile literature, it is clearly manifest in childish recreations, and has invaded the home. Such over-straining and stimulation of the mental and nervous organism cannot fail to cause harmful effects during childhood, frequently produce a neurasthenic and nervous temperament in later life.

Stammering and Its Treatment.

American Medico-Surgical Bulletin.

Coxwell (*Intercoln Quart. Jour. Med.* 1894; *Brit. Med. Jour.*, Dec. 15, 1894; p. 93.) discusses this subject from a neurological standpoint. After showing that the stammerer is never amnesic, and that the trouble of utterance is aggravated by ill-health, nervousness, etc., the author states that the fault lies in a paralysis of some part of the articulatory or phonatory mechanism plus excessive activity or even spasm of other parts. It is different from affections like writer's cramp, which are brought on by overuse of the organ; dysphemia does not result from overuse. Singing, from its rhythm and continuous flow, is easier to the stammerer than ordinary speech, which changes rapidly in time and rate of flow. The author locates it in Broca's centre, and postulates two conditions to explain it, namely, (*a*) a want of power (paresis) in some of the articulatory nerve mechanisms of that centre, and (*b*), a want of accurate regulation of that centre, owing to defective control of it by higher centres.

Hence the treatment is two-fold, namely, generally tonic, and specially gymnastic. Generally tonic: Regulated outdoor exercise, shower baths, and nerve tonics, (quinine, strychnine, phosphorus, or Fellow's syrup). Vocal gymnastic: Daily practice in uttering the simple vowel sounds, at first slowly and then more rapidly, and after good proficiency is attained to add consonants. The patient should next practice reading aloud daily, mastering every difficulty only by slow and assiduous practice. Simple narrative reading should precede dialogue. Patience and steady practice (including vocal or singing exercises), should be combined, but always stopping short of actual fatigue.

The author says he has cured many in this way, the treatment taking several months.

The Influence of the Abortive Treatment of Syphilis on the Nervous System.

Deutsch (*Archiv f Derm. u Syph.*) calls attention to the fact that symptoms of involvement of the nervous system are often among the first of those which show that syphilis has become a constitutional disease. Thus, among the prodromatic, pain in the head, kidneys, psychical disturbances, pallor and nausea are well recognized, and are attributed by Lang to meningeal irritation. Occasionally sluggishness or inequality of the pupils is noticed, neuralgia, greediness, excessive thirst or drenching sweats, all these signs denoting irritation of the brain and its meninges. A similar condition of the spinal cord and its envelopes is indicated in the prodromal and exanthematous period by very marked increase in the reflex excitability of the skin and tendons, followed by a rapid diminution, sometimes amounting to complete absence, which may last for several weeks after the exanthemata have disappeared. All these signs show early involvement of the nervous system, and suggest the advisability of attacking the poison at the earliest possible moment and weakening its virulence. As a matter of personal experience, Deutsch states that in patients who were treated with mercury early—that is, immediately after the appearance of the chancre, or at least before the development of secondaries—symptoms denoting involvement of the nervous system did not develop; whilst in those not treated until secondaries were well marked, such symptoms were the rule. Moreover, so far as tertiary manifestations are concerned, these did not attach the nervous system in cases which received early treatment.

Experiments with Mosquitoes in Mississippi.

Medical Record.

Mr. Howard Weed, of the Agricultural College, Mississippi, has had some success in the abatement of mosquitoes by the free use of kerosene upon tanks of water and in other positions which he mentions. He says (*Insect World*): "Wishing to demonstrate the effectiveness of the remedy which I had recommended, I took a large glass jar and filled it nearly full with water from one of the tanks, which was fairly alive with the mosquito larvæ. The jar contained several hundred of the larvæ and I took it to the college physician, poured a little kerosene into the jar, and asked him to please watch the effect. This was as expected, for within fifteen minutes all the larvæ were dead. Some of the tanks for fire purposes were in dark attics and relatively free from larvæ. Four tanks had them in large numbers. Mr. Weed treated these with a gallon of kerosene, and ten days later the mosquitoes were nearly all gone from the campus and the collegians were able to dispense with the mosquito nets. Three weeks later some of the tanks were again dosed. Upon all the out-door tanks a thin film of kerosene has remained since the kerosene was put in it. The campus is now nearly free from mosquitoes and has been so since ten days after the kerosene treatment. Hereafter during the summer, kerosene will be put in the out-door tanks, putting in enough to keep a

thin film over the top of the water."

If Mr. Weed can successfully apply his methods to certain parts of New Jersey and Long Island, he will make countless hundreds smile and raise the price of real estate.

Operation for Depressed Nose.

University Medical Magazine.

Ellison (*Lancet*, February 17, 1894) gives the history of a case of depressed nose, in which a metal plate was inserted. He describes the procedure as follows: An incision with a tenotomy knife was made on either side and across the nose a couple of lines below the lower part of the depression. The flap of integument thus marked out was raised sufficiently to permit the plate to rest in the position desired on the subadjacent tissues. There was very little bleeding, which was easily stopped with hot water. The flap of integument was then drawn over the plate and carefully sutured with horse-hair along the line of the incision; a thread of catgut as a drain was inserted in the lower portion of the incision, and removed after twenty-four hours. Collodion, except over the catgut drain, and gauze was applied as a dressing. Healing occurred by primary union. The patient, seven years later, stated that she had no inconvenience from the plate whatever, thus establishing the complete success of the operation.

DR. ANDREWS, who has represented Reed & Carnrick so well in Kansas, has transferred his labors to another field. We recommend him to the kind favor of the physicians of Arkansas and the goods he represents to their careful consideration.

THE Missouri State Medical Society will meet in Hannibal May 21st to 23d. There are sixty-two papers on the program.

REMEMBER that we will furnish you the JOURNAL for one year and Helbing's Modern Materia Medica for $2.50.

Colleges With Four-Year Courses.

Medical Record.

Several correspondents write to say that the Jefferson Medical College of Philadelphia was omitted from the list of four-year colleges published in our issue of April 27. Another correspondent writes that the Medical Department of the Oregon State University, and that of the Willamette University, both in Portland, will require a four-year course, beginning with the coming fall session. This is in accordance with the resolution of the College Association, and nearly all the respectable schools in the country will do the same.

IN a St. Petersburg medical paper, Israelson urges the use in obstetric practice of lysol as having greater antiseptic properties and a less poisonous action than any coal-tar derivative hitherto known. He uses a 1 per cent. solution for the skin, etc., and a 2 per cent. solution for instruments, this preparation being less milky than the former. Fo pains, but only slight burning sensations are produced by the use of either, and it has no irritant action on the skin. Owing to lysol forming a lather with water it is a substitute for soap, rendering unnecessary the inunction of the hands and the application of soap and water prior to operations. The author has tried lysol extensively during eighteen months with satisfactory results.

The Dietetic Treatment of Phthisis.

Daily Lancet.

In the course of an editorial comment on a paper read before the Association of the Bellevue Hospital Alumni, by H. P. Loomis, M. D., the New Albany *Medical Herald* says:

"We have long preached the gospel of fat and have insisted that the scales are an important instrument of precision for detecting the rate of progress forward or backward,

not only in the treatment of this disease, but in the general oversight of our patient. A loss of weight is always a suspicious sign and should arouse our attention at once."

The gospel of fat is undeniably a good one but, like many other gospels, it is easier to preach than to practice it. Face the problem, as it presents itself in the everyday course of practice. Here is a patient with all the symptoms of incipient phthisis; a marked and continual loss of weight has been noted and this must be checked. Realizing that starch is the natural source of fat, we recommend oatmeal, bread, potatoes, crackers and similar foods be more extensively used. We may even be deluded into prescribing cod liver oil. A week ensues and the patient again comes in, looking worse than before, and bearing a tale of woe to the effect that the cod liver oil cannot be taken; that between it and the starchy diet which we perscribed digestive disorders have set up and that a further loss of weight has been recorded. The problem now begins to assume that phase which undertakers are so successful in solving. We know that what the patient needs is fat; we know that starchy foods and oils are fattening, but if they cannot be digested, what are we to do? It is just this point that artificially-digested foods come to the rescue, and while disappointment may have followed their use in past, owing to offensive taste or lack of permanency, the medical profession now has in Paskola a form of pre-digested starch which is acceptable to the most delicate stomach and which, aside from its nutritive qualities, is such an active aid to the digestion of albuminous of meaty foods that it is well nigh a specific in the ordinary forms of gastric indigestion. A rapid increase in weight almost invariably follows its use.

THE favorable effect of piperazine treatment in diabetes mellitus has already been commented upon, and although it cannot be regarded as a cure it undoubtedly ameliorates the patient's condition. Dr. Gruber, of Professor Drasche's clinic in Vienna, describes a severe case of diabetes, passing urine containing 7.7 per cent. sugar, which was put upon piperazine. The patient received daily for five weeks 1 gram piperazine dissolved in soda water. At the end of that time the sugar had fallen to 4.03 per cent., and the improvement in the general condition of the patient was very manifest.

IN the after-treatment of a case where an "Operation for the Relief of an Impermeable Occlusion of the Œsophagus of five years Standing" had been performed, which operation was reported at length in the *N. Y. Medical Journal* of March 23rd, 1895, Dr. Augustus C. Bernays, A. M., M. D., Heidelberg, M. R. C. S. Eng., Professor of Anatomy and Clinical Surgery at the Marion-Sims College of Medicine, the operating surgeon says:

"The patient rallied fairly well after the operation, but she became greatly emaciated. Liquid food was given at short intervals as indications demanded. In order to allay the extreme nervousness and irritability, antikamnia was given and it acted promptly and satisfactorily in every instance."

Of the further history of the case it may be stated that on the seventh day after operation, the patient took into her stomach through the natural channel the first food which had passed it in five years; and that in two months convalescence was regarded as fully established.

"PASTEURINE is a thoroughly efficient antiseptic. I have found it of great value as a dentrifice, a vaginal douche, a gargle, a remedy for fermentative dyspepsia, a local wash for the skin in scarlet fever, of value for surgical purposes, and in all infectious diseases. It is indispensable for the sick room and lavatory."—I. N. LOVE, M.D., St. Louis.

THE American Medical College Association, at its meeting in Baltimore reaffirmed its action at San Francisco in requiring four years of study and lectures for graduation in medicine. The Louisville schools united with the association.